Minutes
NV COMMUNICATIONS STEERING COMMITTEE

DATE	January 18, 2005
TIME	1:30 – 4:00 Pm
LOCATION	2525 South Carson St – Carson City 555 East Washington – Las Vegas
RECORDER	Maggie Thorne

ATTENDANCE

Carson City Members	Present	Las Vegas Members	Present
Terry Savage, Co-Chair, Dept of Information Technology	✓	Jack Staley, Co-Chair LV Valley Water District	✓
Robert Chisel, Dept of Transportation	✓	Dennis Cobb, LV Metro Police Dept	✓
Neil Harris, Elko County Sheriff's Office		Anthony DeMeo, Nye County	✓
Heidi Sakelarios, NV Health Division		Rod Massey, Clark County	✓
Kay Scherer, Dept of CNR	✓	Ronda Hornbeck, Lincoln Cty	
Major Bob Wideman	✓		
Dan Newell, City of Yerington	✓		
James Johns, Reno Police Dept	✓		
Chris Lake, NV Hospital Association			
Dan Holler, Douglas County	✓		
Pete Menicucci, NV Nat'l Guard	✓		

Staff

Name	Present	Name	Present
Mark Blomstrom, Dept of Information Technology	✓	Glade Myler, Attorney General's Office	✓
Maggie Thorne, Dept of Information Technology	✓	Dave McTeer Dept of Administration	
Jim Wilson, Clark County/SNACC	✓		

I. CALL TO ORDER

Terry Savage called the meeting to order at 1 :30 pm

II ROLL CALL/MINUTES

The roll call was conducted by Maggie Thorne. Present: 12 members, 0 alternates. Absent: 4

The minutes from the 12/07/04 were reviewed. **Bob Wideman made a motion seconded by Kay Scherer to approve the minutes as presented. Motion carried.**

III. GENERAL DISCUSION

Before the meeting began, Terry Savage commented he wanted to review where the Committee was going and what the schedule is – the next meeting will be the first of February to determine committee direction and the next meeting will be the 1st of March. Sometime in mid-February will be getting the formal recommendation from the consultant and that will be the first item of discussion for March. At that time we have a number of options, we can either adopt it as written, we can reject it as written, we can adopt it with amendments or we can adopt something else. But, so everyone is clear on what our timeline is, at our meeting of the 1st of March we are going to come to a decision on this issue.

Robert Chisel, Dept of Transportation asked to make a motion to reject the November 19 and December 7 documents prepared by Tech Knowledge as incomplete and direct the consultant to:

1. Verify the survey data to ensure data provides statistical representation of Nevada radio systems and interoperability needs. This should include such basic steps as stratification and weighting of responses, statistical sampling to verify responses are matching assumptions, and utilize accepted statistical analysis techniques.

2. Present the verified sample data to the committee with an analysis of the radio systems and interoperability needs identified from the completed survey. The analysis should include a needs assessment which will be reviewed and prioritized by the committee.

3. After completion and approval of the needs assessment the consultant will identify the multiple possible resolutions for each item in the needs assessment. Each possible resolution will be evaluated by the committee for selection. Each possible resolution should be able to meet the basic criteria of being vendor neutral, fiscally feasible, and utilizing existing proven technology.

Robert added that he believes the Committee is wasting time based on incomplete data. Terry added that that has been discussed, but the general consensus has been that the data we have is at least representative of the systems as a whole.

Tim Peters, Tech Knowledge, responded to Mr. Chisel by saying that he believes he has a statistically valid reasonable representation of Nevada's public safety community and I don't think we are going to see any drastic changes in recommendation based on even if we had 100% survey response. What we in Nevada is the same thing around the country and similar situated cases. The general situation (of Nevada) is consistent with other parts of the U.S. Terry asked Glade Myler (Legal Counsel) whether the Committee could address the motion since it wasn't on the agenda and Glade replied the Committee could not take action. Terry Savage indicated that since this was not an agenda item that it be discussed at the February 1st meeting, but that the motion be sent to members for consideration prior to the next meeting. Mark Blomstrom asked Tim Peter's to address the motion in terms of time and specific action and what would it take to do that (the motion)

Robert added that he is now hearing that to do the job right is going to take more time and money. At the last meeting Mr. Peters said he never got the information about radios from Highway Patrol or the Dept. of Transportation. Well we have met with his representatives for a number of hours, so that information was there but apparently was not in the survey. I know that from personal experience and I don't know if anyone else

has experienced that and may not have their data in the survey – we don't know what's in the survey and what's not and how accurate is it? In here (referring to the Powerpoint document) there are some assumptions, so I have concerns but I will be happy to send it (the motion) out to the committee. Terry said it is a little late in the game to be addressing these issues, but if it's a concern, let's address it.

IV. CONTINUED DISCUSSION ON COMMUNICATIONS INTEROPERABILITY PLAN DEVELOPMENT – P25 Standards

The Committee discussed P25 Standards and what they mean to Nevada. Four presenters presented the pros and cons of P25. Presenters included :

John Powell, Independent Consultant
Richard Sheldrew, Dept of Transportation
Jim Wilson, SNACC
Stu Cronan, Independent Consultant

Presenters provided documents supporting their presentations. One of the pros of P25 were that the standards are recognized by Federal agencies, one of the cons were economics (would be costly for the State). Documents distributed included :

1. Executive Technology Brief Project 25 – John Powell
2. WCRCS and NSRS Working Group Report 12/28/04 – Richard Sheldrew
3. http://www.project25.org/Forum/misc.php?s=004df2ed405e0a573d50442533d52c13&action=faq&page=4#eight – Jim Wilson

4. P25 Overview (Powerpoint presentation) – Stu Cronan

Excerpts of comments/questions included:

Tony DeMeo: "...if we are going to accept a standard, and P25 is going to be the standard no matter if Nevada accepts it or not...and if we don't get on board with what the rest of the country is doing then Nevada, again, is going to be standing out by it self, swinging in the breeze..." "In my opinion, it would be fool-hearty to start going off in another direction then where the rest of the country is going...remember the Titanic."

Bob Wideman: "...there is no disagreement that the P25 standard is a train that is moving and the farther we go into the future, the trick for us becomes trying to determine the point at which we jump on the train...when do we find that to be financially viable? When do we find that the technology is sufficiently stable or predictable that we find it to be a good bang for the buck move at that particular point. Another problem we have to come to grips with is the political reality of the funding as we go to decision and I think many state agencies in Nevada, from the small agencies up to the Governor have made various funding decisions in the near and more distance past to buy technology that is not necessarily compatible with this upcoming P25 standard and I suspect we are concerned of being accused of being poor planners or making bad decisions on where the technology is going in the future. I don't know the answers"

Jim Johns : (Directing question to Tim Peters) On the page you refer to in your report you talk about what other option was available – None and then you talk about moving to 800 will complicate the local interoperability and your answer is Sure...could you tell me what that means ? **Tim Peters responded** : « What that means is there were additional problems inserted by the move by transitioning the highway patrol to the 800

MHz system, the answer is unequivitable, I think any of the county sheriff's would say that their degree of interoperability with the number and quality of their daily transactions with the highway patrol decreased with the highway patrol's move to 800. However, that said, there was no other rational course of action, it was the only available choice. There is room for improved planning and practices to get back a very significant fraction of what was lost by that move to 800. **Jim Johns** : I can only speak from first hand experience, but when I grew up in law enforcement in Reno the NHP troopers that I knew had 3 or 4 and sometimes 5 different radios in their car – their opportunity now with their new 800 system to drop down to 2 radios in many cases seems to me that it's improved interoperability and I am just concerned that the tone of that page (in the report) will be seen as critical with NHP. **Tim Peters** : The Powerpoint document is not the formal report and that is the problem in all this. **Robert Chisel** : The reason we are concerned with the Powerpoint presentation is that is all we've been given from you. Tim Peters : We have not been given an opportunity to go all the way through this (the presentation) or discuss it with the Committee. I can understand how people can develop misinterpretations since we haven't been able to present what we are saying. **Bob Wideman** : The interoperabiliy for the highway patrol in the Truckee Meadows area has improved immeasureably with the advent of the 800 system. In the Eastern/Central part of the State, our troopers are still operating everyday on the VHS system and so the 800 system has had no affect on them at all. At this point we have had no degredation of interoperability at all.

Rod Massey : We are talkling about a piece of technology and if you look at the normal evolution of technology generally standards are a good thing. We talk about pricing and pricing is dependent upon the timing and adoption of the technology, so if we are going to look at that as a consideration for adoption of the standard, we need to look at the long-term costs. We need to consider the total cost of ownership, consider those issues and take a balanced approach to it. Can we geta working group to analyse some of these things and get back to us ?

Richard Sheldrew : You are not going to formalize this report and get down to the core of these issues in 40 days, it just isn't going to happen.

Terry Savage : I don't know it that's true.

Tim Peters : What we are talking about is a long-term direction, we are not talking about trying to go out and buy a new state radio system. That's not our intent and that is not in my scope of work – that's another project. I would suggest that you view this not in the context of « what are all the details we need to work out to implement the next state radio system but rather as this is a general direction we will adopt on a long term basis.

Richard Sheldrew : I am confused, we are talking long term but we are talking a technology issue, which there are many technologies, we are also talking a spectrum issue here. Each one has a decision path that's been recommended in this report. In truth I disagree with both of them for the future of my department and when I look at my applications coming down the road with intelligent transportation systems, the need for data, this proposal is not going to meet it. To adopt it would impact or preclude me from taking the department where I think it should be and I believe this may apply to a few other entities in the State.

Tim Peters : With all do respect, our charter was not to develop the data network for the Department of Transportation or for that matter, the State of Nevada. Our charter is to address communications interoperability issues and I believe we have done that.

Terry Savage : The target date that is driving this discussion is the Homeland Security Committee meeting in March. My objective is that we will come up with a recommendation on the 1st of March that says either don't do anything different or what the report is the right thing to do or this other plan that someone comes up with might be the right thing to do. We aren't going to have unanimous agreement on whatever we pass. I think we need a clear broad concensus, we don't have to have everyone in agreement.

Rod Massey : So Terry, is the goal of this to create an interoperability recommendation to the HSC or is it to create a recommendation related to P25 ?

Terry Savage : The recommendation might or might not include something dealing with P25 – it's just that P25 is a known issue of controversary and makes a difference of what direction you choose and that's why we are having this discussion today.

Rod Massey : What are the next steps for the committee ? Who is going to be involved ? What is the project plan that we get this done ?

Terry Savage This meeting was to discuss P25, the February 1st meeting I want people who have different scenarios for what we should recommend (to HSC) to bring them in writing. Tim Peters will be giving us one in the middle of next month (around the 15th of February) and if we have others to consider, we will have 3-5 alternatives to discuss. What won't work and what I would consider a failure is for us to meet and say nothing, that we won't go forward with this. So on the first of March we should have options that hopefully someone will make a motion to accept and then we will debate that motion.

Tim Peters : We put our conceptual Table of Contents out on the table before and it has been approved by the committee. We (Tech Knowledge) are here to advise you on what we feel is the optimum direction and we've provided you with the best advice we know to give you, if you choose to go in another direction, we are here to develop the Plan on your behalf, not to inject our opinion.

Jim Johns : Simple statement submitted is not the same as approved and the question I have since you are the paid consultant for the State, are you going to be able to provide us with a migration plan for the existing systems should a P25 standard by adopted ?

Tim Peters : That is outside the scope of our current engagement. We could but it's outside the scope.

Rod Massey : Getting the feed back, where should it go ?

Terry Savage : Mark Blomstrom is probably the best focal point. He will make sure it get's distributed to the entire Committee.

Tim Peters : I would like to make it clear to the Committee that we (TechKnowledge) are available for discussion, questions, comments, brain picking, whatever you want. We have an 800 number and you can call us on our nickle – we are at your disposals.

Glade Myler : But you can't surconvent the open meeting law.

Terry Savage : We will also plan on going through the Powerpoint presentation next month.

Dick Mirgon : Everyone is talking about costs, one thing I want to point out. Yeah there is an additional cost to go with Project 25, but we are paying an upgraded cost to go to a trunk radio, you are paying upgrading cost to go from an 8-channel to 160-channel. If you go back 10 years, I paid $1200 for a radio that today I am paying $500, and I paid $2000 for radios I am now paying $700. So I don't think you should let costs get that deep into it because it's going to be like the Beta vs. VHS discussion. Another issue, I wish everyone would go back and listen to this tape because from an outsiders point of view it looks like a tennis match. We keep going from a discussion of where are we going to be in 10-20 years to what did we do 5-10 years. The fact is, everyone in this room owns a radio that if it's not obsolute today it's going to be just because technology changes. So I don't think the issue is what are we doing today and why did we do it, the issue is where are we going to be in 10-20 years. That's what we did wrong 10-20 years ago, we failed to set that long term goal.

Tim Peters : Our 800 number is 1-800-818-TECH (8234).

Glade Myler : Anyone who wants to talk to Tim needs to do it on an individual basis, you can not do it 2-3 of you at a time and be discussing issues. It's one at a time or you are going to violating the open meeting law. So if you are going to call him, do it individually and then do not get together and discuss it without being in a meeting with it on the agenda.

Glade Myler : It depends on what they do. If they merely get informaton together to bring back to this Committee for deliberation, then they are a working group, but if they make any decision or recommendations they need to be a sub-committee and follow the open meeting laws.

Kay Scherer : What are our next steps for getting a final recommendation in to the HSC ? Are we making a preliminary recommendation in March on where we are at in our progress, where we think we are going ?

Terry Savage : That's inevitable what will happen. Our recommendation will be a low resolution of where we think we are going.

Kay Scherer : I believe we all should read AB441 so we are clear in our minds of what we need to do to satisfy that, but if we try to everything by that time, it's a shipwreak.

Terry Savage : True, not going to happen. I think that is what Rich was preluding to earlier. I appreciate you making that point. We are not trying to get the full detailed plan, we getting the outline.

Stu Cronan : Isn't there some process for a working group to help esculate the process rather than once a month till July. There is a lot at stake here (real or perceived).

Jack Staley : I've been led to believe that future grants are going to require P25 standards.

Glade Myler : That is most likely true that P25 standards will be a requirement for 2007 funding and we (Nevada) do not go to P25 compliant we won't be eligible for those funds.

Mark Blomstrom : (Asked Glade) What's the difference of a working group and a sub-committee

Glade Myler : A working group is a fact finding body, they get facts together a present it to the body, they can not make a recommendation, they can not deliberate it and that is the difference between the open meeting law.

Mark Blomstrom : So if we term a group of people a working group, do we have to adhere to open meeting laws ?

Terry Savage : So if some people wanted to get together and do a cost analysis of P25 vs non P25, as long as they don't make an decisions or recommendations, but just gathered the data and brought it to this Committee, then that would be okay ?

Glade Myler : That would be okay.

Terry Savage : Mark Blomstrom will take that idea forward.

V PUBLIC COMMENT

Robert Chisel mentioned that the State of California is going to get together with the State of Nevada to discuss Mutual Aide Channels. The meeting will be sometime in March in Lake Tahoe. Invitations will be sent out. Contact Linda Morrison (lmorrison@dot.state.nv.us) . Maggie Thorne offered to send the invitation to her and she would send it to the NCSC Interest Group.

X. ADJOURNMENT

With no further business to discuss, the meeting was adjourned at 3:45 pm. Future Meeting: February 1, 2005

Minutes are posted on the website at: http://ncsc.nv.gov/
Questions Call: 775-684-5859 or email maggiet@doit.state.nv.us
The meeting was recorded.

Draft minutes submitted by Maggie Thorne, 1/24/05
APPROVED: _____ DATE: _____

Executive Technology Brief

For Public Safety Executives and Elected Officials

A program of the National Institute of Justice

Project 25 (P25)

Key points:

- **P25 will enable communications among radio systems, including interoperability between different manufacturer's P25 compliant products.**
- **The Project 25 suite defines interface standards. The P25 Standard suite is being developed within the ANSI/TIA, via the TIA 102 series of documents.**
- **Completed P25 components are generally referred to as Phase 1 and operate in a 12.5 kHz channel. P25 Phase 2 generally refers to unfinished components that include trunking operation in a 6.25 kHz channel.**
- **P25 Phase 1 equipment has been fielded around the globe for years, and continued P25 deployment will foster market competition.**

Project 25 (P25) is the first-ever **user-driven process** to define an **open interface standards suite** for public safety communications products. Products based on P25 standards allow public safety agencies to deploy truly **interoperable** communications systems.[1] P25 standards are **independent of any particular frequency band.**[2] Products are being developed & marketed for use within all the current public safety bands above 150 MHz. Systems that employ some, or all of the P25 standards are deployed around the world. P25 was called APCO Project 25, as it was originated with a consortium of local, state and federal public safety organizations led by the Association of Public Safety Communications Officials International (APCO) to lead the way from older analog technology to the new world of digital. "Project 25" was adopted in the mid-1990s to reflect the contributions from this wider group.

The ongoing goal of P25 is to develop user-driven open standards that promote (1) **competitive procurement**, (2) **graceful migration** (backward and forward) from APCO 16 trunking and other legacy wideband analog radio systems to a truly interoperable standards-based wide-area digital radio system supporting many different system architectures, (3) effective, efficient and reliable **interoperability**, (4) **spectrum efficiency**, and (5) a **user-friendly interface**. P25 provides standards for voice coding, encryption, mobile data transport and subscriber unit addressing. Direct in-band radio-radio (talk-around) operation between end users is supported via the common air interface (CAI). Unencumbered subscriber roaming between P25 systems will soon be possible. Standards will enable third-party management and equipment interconnection.

The **Telecommunications Industry Association (TIA)** provides the forum, via its TR-8 Private Wireless Committee, to develop P25 standards, specifically, within its TIA-102 series of standards documents.[3] The TIA is also the forum through which current P25 standards are being further developed and refined. **Completed components are generally referred to as Phase 1. Uncompleted components are generally referred to as Phase 2**. The P25 Phase 1 suite includes 33 documents. Backwards compatibility will be ensured as the migration to Phase 2 P25 standards based systems occurs.

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[1] See NIJ Executive Technology Brief CO-001, Communications Interoperability.
[2] See NIJ Executive Technology Brief CO-002, Radio Spectrum.
[3] TIA is an industry association accredited by the American National Standards Institute (ANSI). www.tiaonline.org.

Phase 1 (12.5 kHz) standards include the **Common Air Interface** (CAI), **Telephone Interconnect**, **Data Network**, and **Network Management Interfaces**. Phase 2 components support **conventional and trunking operation in a 6.25 kHz channel** (the non-trunked 6.25 kHz single voice channel FDMA standard is complete, but no products are fielded). Phase 2 will include a **6.25 kHz equivalent (TDMA) air interface** where two voice paths will time-share a 12.5 kHz channel. Other interfaces being standardized with Phase 2 include the **Inter-RF SubSystem Interface (ISSI), Console, and Fixed Station Interfaces**. The ISSI supports linking of systems across a wide geographic area and is a top priority within TIA.

Many doors to interoperability are opened via P25 implementation. P25 compliance is an industry-wide measuring stick for interoperability. Limitations in the current public safety radio environment will continue to exist, but P25 provides an avenue for addressing many of them. System interconnects between bands will be possible with the ISSI, allowing a VHF system user to speak with a UHF system user as if they were on the same network, with end-to-end encryption. The cross-band interface without the ISSI, or another P25 gateway device, will still be an issue. While P25 systems are capable of carrying IP-based data traffic, **P25 is not an end-to-end IP-based radio standard**. Proprietary end-to-end IP-based systems are on the market with subscriber radio sets (mobiles/portables) that can switch into a P25 CAI compatible (non-trunked) mode to provide direct on-scene interoperability, a common operating mode for many agencies. These systems allow interoperability of their subscribers into other P25 systems, but they do not currently support P25 subscriber radios on their own trunked system infrastructure.

The standard facilitates migration to **12.5 kHz narrowband channelization**, as required by the NTIA and the FCC. P25 compliance facilitates change in a manner that improves interoperability instead of creating new incompatible systems. Use of Project 25 standards-based equipment is strongly encouraged by the NIJ. NIJ will encourage the adoption of P25 through requirements established through ongoing grant guidance. The Federal Government requires that all new Federal land mobile radio systems, including those used by DoD for non-battlefield applications, be P25 compliant. The technical capabilities provided through the adoption of these standards are of use only if effective inter-agency agreements are put into place. As with any interoperable communications technology, system governance must also be considered as part of the deployment planning process prior to any new system deployment.

For more information:

NIJ CommTech: http://www.nijcommtech.org/.

Interoperability Resource CD-ROM, request via email at askagile@ojp.usdoj.gov, or call 1-202-514-5687.

Or contact a regional National Law Enforcement and Corrections Technology Center:

Northeast (Rome, NY)	888-338-0584	Western (El Segundo, CA)	888-548-1618
Southeast (Charleston, SC)	800-292-4385	Northwest (Anchorage, AK)	866-569-2969
Rocky Mountain (Denver, CO)	800-416-8086	Rural Law Enforce. Tech. Ctr.	866-787-2553

Additional Information: Project Safecom Library: http://www.safecomprogram.gov/libdetail.cfm?secid=1

WCRCS AND NSRS WORKING GROUP REPORT

(Working Draft)

REVIEW, DISCUSSION, AND RECOMMENDATIONS REGARDING THE DEPARTMENT OF INFORMATION TECHNOLOGY RADIO INTEROPERABILITY REPORT

REPORT 122804-02

RESPONSE TO STUDY RECOMMENDATION BY TECH/KNOWLEDGE THAT THE STATE IMPLEMENT THE PROJECT 25 STANDARD, SPECIFICALLY THE PHASE 1 TECHNOLOGY

DATE: December 28, 2004

SUMMARY

There are three questions that should be asked when implementing a technology project to include radio systems. The questions are:

- Why do it?
- Why do it this way?
- Why do it now?

Correct answers to these engineering/economic questions will ensure that the investment and implementation of a radio system provide operational paybacks, economic returns, and technological improvements.

The TECH/Knowledge recommendations as presented to the Department of Information Technology (DOIT) include the recommendation to implement the Project 25(P25) radio equipment standard. It appears that this study recommendation is based on the survey result of 4 responses or 1.17% of the 341 surveys sent to Nevada State and local governments. The TECH/Knowledge recommendation does not answer the important questions presented above. As a result, the recommendation does not demonstrate any return on investment operationally, economically, or technologically. Therefore, the TECH/Knowledge report should be rejected with respect to its recommendation to implement the P25 Phase 1 radio standard. The recommendation should be reassessed based on cost benefit analysis of operational, economic and technical paybacks.

SCOPE

This report includes review and comment of DOIT's most recent commissioned study on radio interoperability. Specifically, this report discusses why a working group from the Washoe County Regional Communications System (WCRCS) and Nevada Shared Radio System (NSRS) disagree with the recommendation that the state fund, implement and require the P25 Phase 1 radio equipment standard as the state technology solution for radio interoperability and associated radio systems.

PURPOSE

The purpose of this report is to summarize the impact of mandating P25 public safety radio standards as currently recommended in TECH/Knowledge's report to the Department of Information and Technology.

BACKGROUND and DISCUSSION

The public safety radio standards process started in 1987 with the goal of developing a standard technology to be used in the manufacture of public safety trunked radio systems. The first process to develop radio standards was known as APCO 25,[1] which had the following objectives:

- Obtain maximum radio spectrum efficiency
- Ensure competition in system lifecycle procurements
- Allow effective, efficient and reliable intra-agency and interagency communications (interoperability)
- Provide "user friendly" equipment
- Provide for graceful migration from analog thorough future digital technologies

After 12 years there was still no agreement between state and local governments, public safety organizations/associations, manufacturers, and regulators regarding the digital technology to be used in radios. As a result of the foregoing parties' inability to agree and the failure of APCO 25 to develop an equipment standard for interoperability purposes, the original standards process was expanded from a single technology to multiple technologies in 1999.

The new multiple-technology process is known as P25. Under P25, there are now four technologies and associated standards being addressed. They are known as P25 Phase 1, P25 Phase 2 FDMA, P25 Phase 2 TDMA, and the P25 Phase 3 technologies.

[1] Associated Public Communications Officers, Inc.

OBSERVATIONS

Before mandating any of the P25 technologies there must be an assessment of the costs and benefits of such a mandate. Specifically, such an assessment must include a measure of the engineering economics associated with capital investments by governments for public safety radio systems, including retirement and replacement economics. Because of the large investments needed for public safety radio systems, the timeframes to obtain funding, and relatively modest 10-year lifecycles of radio systems, the purchase of any radio system and associated technologies must maximize the operational, technology, and economic paybacks.

The TECH/Knowledge report recommends the state implement the P25 Phase 1 technology over the next five years. This technology was developed in 1987 and will be twenty- three (23) years old by the time it is completely installed. Contrast this recommendation to the fact that several European countries have already implemented the more advanced TDMA radio technologies beginning in 1997. Two states, New York and Pennsylvania are in the process of implementing TDMA technologies. WCRCS and NSRS, as well as the Las Vegas Metropolitan Police, recommend TDMA technologies as the best future radio technology. WCRCS and NSRS believe that TECH/Knowledge is recommending that DOIT implement a radio system based upon an already obsolete technology at an estimated cost of greater than sixty million dollars.

The Working Group agrees that:

- It is unlikely that Federal, State and local governments will subscribe to a single technology that operate in a common frequency band using a single technology standard in the next 10 years.
- It is unlikely that the majority of embedded base of analog radio equipment currently in use by Nevada Public Safety entities in the VHF, UHF 450 and UHF 800 will be changed to a digital technology using frequencies in any of the frequency bands within the next 8 years. Therefore, the majority of communications will utilize analog technologies to include radio interoperability.
- There is a high probability that P25 Phase 2 and Phase 3 or equivalent technologies will be available within 5 years of this report.

Given the above issues, then:

If the objective is to achieve interoperability, the emphasis should not be on mandating a digital standard for Nevada governments. Instead, the objective should be to review the economics of 20 year old solutions such as gateways or buying the small percentage of remaining VHF radio users 800 MHz radios for interoperability while allowing them to use their existing VHF systems or migrate to regional 800 MHz systems. The working group will be providing a separate report on alternatives and associated costs of the two solutions mentioned above.

With respect to mandating the P25 Phase 1 Technology for the purpose of achieving interoperability, the following observations are provided:

- The only standard required at this time by the Federal Communications Commission (FCC) is for radios that operate in the 700 MHz band on the 700 MHz interoperability frequencies to provide the P25 Phase 1 Common Air Interface in the radio units.
- The FCC has elected not to mandate a radio standard for radio system infrastructures.
- Digital standards have only been defined for P25 Phase 1 and have yet to be completed for equipment such as consoles.
- Mandating the P25 Phase 1 Common Air Interface for new portable and mobile radio equipment that operates in frequency bands other than 700 MHz will result in governments paying 15% to 30% more for portable and mobile radios.
- Mandating a digital radio standard will not allow systems in different frequency bands to interoperate with each other.
- Mandating the P25 Phase 1 Technology will not provide any different feature, function, or capability then is provided by the current regional or statewide radio systems already implemented.
- Mandating any digital radio standard in Nevada will require all existing radio systems to be replaced or upgraded at significant costs while stranding costs associated with existing systems.
- Mandating Project 25 Phase 1 is uneconomical from any common sense viewpoint.

If the objective is to establish a digital radio technology for Nevada governments, the study of the selection of a technology becomes the traditional economic study of the defender vs. challenger. In this case, the defender is P25 Phase 1 and the challenger is Project 25 Phase 2 TDMA or P25 Phase 3 or equivalent. The question is whether to (a) continue the defender for some duration of time, or (b) retire the defender in favor of the present challenger or more advanced digital technology.

It is the Working Groups' viewpoint that given budget constraints of governments, and the fact that several new technologies already exist or will be produced in the next 6 years, the economics of retirement and replacement of equipment, systems, and technologies do not support the TECH/Knowledge recommendation. The state should not be mislead and allow interoperability issues to impact or dictate the implementation of a technology that:

- Will economically impact the state
- Preclude the state or its local entities from being able to implement newer technologies.

The Working Group also notes that if followed, the TECH/Knowledge recommendation to implement a cross band system and a VHF trunking system that use P25 digital technologies will cost the state greater than sixty million dollars ($60,000,000.00). While interoperability is certainly important, the requirement for interoperability is a small percentage of most entities' overall requirements.

Given the alternatives of funding a radio system for interoperability, or conversely, using the funding to enhance coverage and capability of existing systems, the Working Group sees a greater cost benefit and return on investment with the latter alternative.

With respect to the economic argument of the challenger vs. defender, the common sense viewpoint of the Working Group is that the State should develop the more advanced technologies. There is no defendable economic, operational, or technical payback with the proposed P25 Phase 1 technology as compared to the implementation of the newer TDMA radio technologies.

CONCLUSION

Mandating a digital radio standard will not correct any of the radio deficiencies or increase the ability for Nevada Governments to interoperate. Mandating a radio standard will result in increased costs to State and local governments and the taxpayer. The TECH/Knowledge recommendation will result in the funding of a radio technology that is already considered obsolete and provides no beneficial features or function as compared to existing systems.

RECOMMENDATION

The Working Group requests that:

- The Nevada State Legislature remove or delete any and all legislation that proposes to mandate P25 Phase 1 technology for public safety radio standards. The Working Group directs this recommendation to any committee that is addressing radio issues and associated recommendations to the state, commissions or legislature.
- Grant funding or other funding under consideration to support the implementation of DOIT's TECH/Knowledge recommendation should be redirected to enhance existing systems of those State and local governments that are currently working together.
- Further discussions or consideration of technology standards should include the WCRCS and NSRS working groups in order to obtain a clear and accurate assessment to base decisions on.